MATTHEW EBERT

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EDUCATION

Ph.D in Mechanical Engineering 2021-Present
Texas A&M University

Bachelors in Mechanical Engineering 2017 - 2021
Texas A&M University. GPA : 3.45

PROJECTS

1. Full CT Machine with variable magnification for scanning of large and small pipes with internal defects.
2. Flow improvement in PepsiCo Cheeto Puffs Extrusion Process.
3. Full analysis of residential home heating and cooling system with energy usage.

WORK EXPERIENCE

Research Assistant, Texas A&M University, College Station Aug 2021 - Present
Lab: Mixed Initiative Design Lab, **Advisor:** Dr. Vinayak Krishnamurthy
- Run Finite Element Analysis (FEA) on geometric models with varying complexity.
- Oversee groups of undergraduate students conducing research experiments within the lab.

R&D Engineering Intern, InspeCT360, Cypress, TX Dec 2020 - August 2021
- Design a new system to CT scan pipes with diameters ranging from 5in to 36in with a variable magnification level and location area.
- Update and maintain a C++ created code that gathers images from CT scanning machine with large data handling capabilities.
- Develop a multi-threaded program in C++ to stitch two images together which were gathered by X-Ray scanning.

Undergraduate Research Assistant, Texas A&M University, College Station Aug 2019 - Aug 2021
Lab: Mixed Initiative Design Lab, **Advisor:** Dr. Vinayak Krishnamurthy
- Run Finite Element Analysis (FEA) to analyze structural members of multi-member assemblies
- Facilitate tensile testing of 3D printed sample with new generated infill samples.

Peer Teacher/Grader, Texas A&M University, College Station Aug 2019 - May 2021
- Weekly grade 60% of grades including homework and in-class assignments
- Assist students in SolidWorks design software during in-class activities and assignments.

Project Manager, Blueprint Ministries, San Antonio May 2018 - Aug 2018 ,May 2019 - Aug 2019
- Lead construction projects for a non-profit organization by managing and organizing a range of home restoration activities for elderly, disabled, low income residents of San Antonio.
- Train over 150 middle and high school students servant leadership through home repair and construction
- Streamline construction lead time and quantity for lean processes.

POSITION OF RESPONSIBILITY

Outreach Coordinator, Christian Engineering Leaders 2019-2020
- Organize and facilitate monthly volunteering opportunities for 50 members
- Oversee yearly mission trip planning to local city

Event Planning Organization Member, Christian Engineering Leaders 2019-2020
- Plan weekly events to help foster community within Christian Engineering Leaders

FRC Robotics Treasurer and Driver 2016 and 2017
- Allocate and oversee donations and funds used for travel, tools and robot building

JOURNAL PUBLICATIONS

[**J3**] Vinayak Krishnamurthy, Laxmi Poudel, **Matthew Ebert**, Daniel H. Weber, Rencheng Wu, Wenchao Zhou, Ergun Akleman, Zhenghui Sha. **LayerLock: Layer-Wise Collision-Free Multi-Robot Additive Manufacturing Using Topologically Interlocked Space-Filling Shapes.Computer Aided Design**, 152:103392,2022.

[**J2**] Ergun Akleman, Vinayak R. Krishnamurthy, Chia-An Fu, Sai Ganesh Subramanian, **Matthew Ebert**,Matthew Eng, Courtney Starrett, and Haard Panchal. **Generalized abeille tiles: Topologically inter-locked space-filling shapes generated based on fabric symmetries.Computers Graphics**, 89:156 – 166,2020.

[**J1**] Vinayak R. Krishnamurthy, Ergun Akleman, Sai Ganesh Subramanian, Katherine Boyd, Chia-An Fu,**Matthew Ebert**, Courtney Starrett, and Neeraj Yadav. **Geometrically interlocking space-filling tiling based on fabric weaves**. IEEE Transactions on Visualization and Computer Graphics

CONFRENCE PUBLICATIONS

[**C3**] Abhijeet Singh Raina, Shantanu Vyas, **Matthew Ebert**, Vinayak R. Krishnamurthy, **QuickProbe: Quick Physical Prototyping in-Context using Physical Scaffolds in Digital Environments**. IDETC, 2022.

[**C2**] **Matthew Ebert**, Sai Ganesh Subramanian and Vinayak R. Krishnamurthy, and Ergun Akleman. **Generative infills for additive manufacturing using space-filling polygonal tiles**. IDETC, 2020.

[**C1**] Vinayak R. Krishnamurthy, Ergun Akleman, Sai Ganesh Subramanian, Katherine Boyd, Chia-An Fu, **Matthew Ebert**, Courtney Starrett, and Neeraj Yadav. **Bi-axial woven tiles: Interlocking space-filling shapes based on symmetries of bi-axial weaving patterns**. Graphics Interface, 2020.

TECHNICAL SKILLS

Tools	SolidWorks, 3D-Printing
Analysis tools	ANSYS Fluid Flow and Structural Simulation and APDL
Platforms	MS Office, Python, Matlab, LabVIEW, C++.

AWARDS & ACHIEVEMENTS

Two time robotics World's competitions qualifier
Presidents Achievement Scholarship Recipient
Valero Alamo Bowl Scholarship
Rene and Scott Moses Scholarship